

INFO I210

INFORMATION INFRASTRUCTURE I

Department of Human-Centered Computing
Indiana University School of Informatics and Computing, Indianapolis
Spring 2022

Section No.: 25150 *Credit Hours:* 4
Time: Tuesday - Thursday: 12 pm – 1:50 pm Jan 11 – May 3
Location: LE 105

First Class: Jan 11, 2022
Website: <https://iu.instructure.com/courses/2058425>

Instructor: Prof. Joseph Defazio, MAS
Office Hours: by Appointment
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[\[map\]](#)

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Course Description:

The software architecture of information systems. Basic concepts of systems and applications programming.

Extended Course Description:

This course introduces students to software architectures of information systems and the basic concepts and procedures of systems and applications development. Course topics include the syntax of JavaScript programming, the fundamentals of procedural programming, the principles of developing dynamic, database-driven applications for the World Wide Web, and the concepts of NoSQL databases. Students will acquire skills for building online shopping sites, implementing user authentication and authorization, and managing a large volume of content through NoSQL databases. Coverage of HTML and CSS is very limited. Prior knowledge of HTML and CSS is helpful. Extra reading and practice may be necessary for those who lack knowledge and experiences with HTML and CSS.

Video Courses from LinkedIn.com/learning (Lynda.com):

The following video courses are a good supplement to the materials we will be studying in class. Based on your background and needs, please choose the courses and topics to watch. Please search the links to the courses at <https://www.linkedin.com/learning>.

HTML Essential Training:
<https://tinyurl.com/y3yojt4k>

CSS Essential Training:
<https://tinyurl.com/yyrtqvzx>

JavaScript Essential Training:
<https://tinyurl.com/y56xcl5j>

Equipment Needed:

- A reliable laptop computer running Windows, Mac OS, or Linux operating system. Please visit <http://informatics.iupui.edu/technology/laptop> for information on the Laptop Initiative for Informatics majors.

- ~~Webcam for online class. (required) \$11.99~~
https://www.amazon.com/dp/B08915T9W3/ref=cm_sw_em_r_mt_dp_rJi9FbN5YF334

Software used:

Visual Studio Code (recommended) or any HTML Editor (PHPStorm, WebStorm, Sublime Text), any other web page creator, GitHub Desktop, Github, Adobe XD, terminal, Google Firebase Account (Do not use school account for this), PulseSecure, Cyberduck, and Web4 server at IUPUI.

Teaching and Learning Methods:

The course structure is composed of these parts:

- Lectures / Lab:
 - This activity will be the majority of class time. Use of software packages to implement concepts and designs are key to understanding the principles that are taught in the lecture and practiced in the lab.
- Quizzes/Test:
 - Test and quizzes will be administered to assure you are grasping the concepts needed to complete the course and understand the learning outcomes for the class.
- Projects:
 - Weekly homework assignments will be assigned, these could be individual or group assignments.
 - Students MUST have their work completed weekly for credit in this class.

- Communication through Canvas is a requirement and peer to peer communication is key for success.
- Student must have a working laptop or have access to a working computer.

Learning Outcomes:

Upon completion of this course, the student will	*RBT	IUPUI+	PLO's	Assessment
1. Structure and implement HTML/CSS.	2	P1.1, P1.4; P1.2;	1	Weekly Assignments Quizzes
2. Implement basic web development practices.	3	P1.1; P2.1;	1	Weekly Assignments Quizzes
3. Create visualizations in accordance with UI/UX theories.	6	P1.1; P3.2, P3.3	1	Weekly Assignments Quizzes
4. Develop a fully functioning website and deploy it on a web server.	6,3	P1.1, P1.3, P1.4; P2.1; P3.4	1	Weekly Assignments, Milestones, Final Presentation Quizzes
5. Implement basic JavaScript.	3	P2.1	3.1	Weekly Assignments Quizzes
6. Store and understand large amounts of data in NoSQL database.	2,3,4	P2.1	3.1	Weekly Assignments Quizzes

*RBT: Revised Bloom's Taxonomy: 1. Remembering, 2. Understanding, 3. Applying, 4. Analyzing, 5. Evaluating, 6. Creating

Media Arts and Science B.S. Program-level Learning Outcomes (PLOs)	†Profiles of Learning for Undergraduate Success (PLUS, IUPUI+)
1. Understand digital media and its effective use as a form of communication.	P1.1 Communicator – Evaluates Information
2. Communicate ideas effectively in written, oral, and visual form to a range of audiences.	P1.4 Communicator – Conveys Ideas Effectively P1.2 Communicator – Listen Actively* P3.2 Innovator – Creates/Designs**

3. Work effectively as a member of a team to achieve a common goal.	P2.2 Problem Solver – Collaborates P1.3 Communicator – Builds Relationships*
4. Analyze a problem, identify and evaluate alternatives, and plan an appropriate solution.	P2.1 Problem Solver – Thinks Critically P3.1 Innovator – Investigates*
5. Evaluate media from multiple perspectives using the theories, concepts, and language of digital media with an appreciation for the history, theory, and traditions of digital media.	P2.3 Problem Solver – Analyzes, Synthesizes, and Evaluates
6. Demonstrate mastery of the concepts, techniques, and tools in one or more digital media specialties.	P2.4 Problem Solver – Perseveres P3.2 Innovator – Creates/Designs*
7. Develop professional quality digital media productions by promptly applying knowledge and skills including best practices and standards.	P3.2 Innovator – Creates/Designs P3.3 Innovator – Confronts Challenges*
8. Explain the impact of digital media on individuals, organizations, and society.	P4.4 Community Contributor – Anticipates Consequences P4.1 Community Contributor – Builds Community*
9. Acknowledge diverse opinions regarding professional, ethical, legal, and social issues with a global perspective.	P4.3 Community Contributor – Behaves Ethically P4.2 Community Contributor – Respectfully Engages Own and Other Cultures*
10. Plan for continuing professional development with an appreciation of the need for lifelong learning.	P3.4 Innovator – Makes Decisions

Assignments, Attendance, Quizzes and Exam

		<u>Points</u>
Attendance	25@10pts ea.	250
Assignments	6 @100pts. ea.	600
Proficiency Labs	7@10 pts ea.	70
Quizzes	8 @10pts. ea.	80
Mid-Term Exam		100
Final Project		200
Total		1300

Weekly Schedule:

Date for each class meeting:

- Specific pre-class readings (Weekly Review Documents)
- Specific subject matter/topics covered
- Goals and objectives of each class period

Weekly Schedule:

Date	Class topic/activity, Reading and/or Assignment
Week 1	<ul style="list-style-type: none"> • Introduction to class and setting up server & Visual Studio Code
	<ul style="list-style-type: none"> • Quiz on Syllabus. • Set up Visual Studio Code and show shortcuts. • Lecture on Intro to Web Development • Make initial project.
Week 2	<ul style="list-style-type: none"> • HTML Fundamentals • Quiz on HTML
Week 3	<ul style="list-style-type: none"> • CSS Essentials • Quiz on CSS
Week 4	<ul style="list-style-type: none"> • jQuery 1
Week 5	<ul style="list-style-type: none"> • jQuery 2 • Quiz on jQuery
Week 6	<ul style="list-style-type: none"> • JavaScript
Week 7	<ul style="list-style-type: none"> • JavaScript • Quiz on JavaScript
Week 8	<ul style="list-style-type: none"> • Understanding Objects and Arrays • Quiz Objects and Arrays • Midterm Exam • Final Proposal
Week 9	<ul style="list-style-type: none"> • Understanding JSON & Working with JSON 1 • Final Second Draft
Week 10	<ul style="list-style-type: none"> • Understanding JSON & Working with JSON 2 • Quiz JSON • Final Third Draft
Week 11	<ul style="list-style-type: none"> • Understanding JSON & Working with JSON 3 • Quiz JSON • Final Last Draft
Week 12	<ul style="list-style-type: none"> • Managing Site State • Quiz Site State
Week 13	<ul style="list-style-type: none"> • Creating PWA (Progressive Web App) 1 • Final Project work lab
Week 14	<ul style="list-style-type: none"> • Creating PWA (Progressive Web App) 2 • Final Project work lab
Week 15	<ul style="list-style-type: none"> • Creating PWA (Progressive Web App) 3 • Final Project work lab
Week 16	<ul style="list-style-type: none"> • Final Project Due

Grading Scale:

Grade	Points	Percentage	Description
A+	1260 - 1300	97 – 100%	Professional level work, showing highest level of achievement
A	1210 – 1259	93 - 96.99%	Extraordinarily high achievement, quality of work
A-	1175 - 1209	90 - 92.99%	Excellent and thorough knowledge of the subject matter
B+	1130 - 1174	87 - 89.99%	Above average understanding of material and quality of work
B	1080 - 1129	83– 86.99%	Mastery and fulfillment of all course requirements; acceptable work
B-	1040 - 1079	80 – 82.99%	Satisfactory quality of work
C+	1005 - 1039	77– 79.99%	Modestly acceptable performance and quality of work
C	950 - 1004	73 – 76.99%	Minimally acceptable performance and quality of work
C-	910 - 949	70 – 72.99%	Unacceptable work (Core course must be repeated for credit)
D+	875 - 909	67 – 69.99%	Unacceptable work (Course must be repeated for credit)
D	820 - 874	63 – 66.99%	Unacceptable work
D-	780 - 819	60 – 62.99%	Unacceptable work
F	0 - 779	Below 60	Unacceptable work

No credits are granted for a grade below C.

Modules:

All class instructions for the week will be located in the Module portion of Canvas. You can access this through the menu on the left-hand side of the Canvas class site. Modules will consist of everything that is covered during the week. You could see lecture notes, possible readings, quizzes, exams, homework assignments, and anything else that is expected of you for that week.

Exams:

There will be one midterm exam over the materials covered in the first half of the semester. The exam will consist of multiple choices, true/false, fill in the blank, and short answer/essay questions. It is designed to assess your mastery of important concepts and theories in great depth and breadth. Questions may be drawn from PPT slides, assigned video tutorials, class activities, and reading assignments, and lectures. There will be no written final exam.

Quizzes:

There are several quizzes given during the semester. A quiz usually covers the materials studied in the previous week. It may consist of multiple choices, true/false, and fill-in-blank questions. Quizzes are designed to assess your mastery of important concepts covered in lectures. All quizzes will be given in Canvas.

Homework assignments:

All assignments are posted under the Assignment tab in Canvas. All assignments are posted under the Assignment tab in Canvas. Assignments are web-based applications. We will use Cyberduck as a hosting site for your assignments.

All assignment deliverables will be a url (<https://> webpage link) that can be copy/pasted into your Canvas/Assignment upload area.

1. **Reading:** Reading materials from various sources will be assigned for each study unit. Although they will not be collected and graded, they are critical to a student's success in this course.

2. **Lab exercises:** These exercises are designed to provide students with practical experience. They are built on walkthroughs and include variations to enhance independent learning. Some of the exercises provide detailed instructions; while others provide less detailed instructions and require you to apply the materials presented in class with less guidance.
3. **Final project:** This comprehensive project will demonstrate the students' ability to build a dynamic, database-driven Web site similar to those business Web sites on the Internet. The project consists of three components: coding, documentation, and presentation. Detailed instructions will be available later in the semester. This final project substitutes for the final exam.

Expectations, Guidelines, and Policies

Attendance: (TopHat)

A basic requirement of this course is that you will participate in all class meetings, whether online or face-to-face, and conscientiously complete all required course activities and assignments. Class attendance is required for classroom-based courses. It entails being present and attentive for the entire class period. Attendance shall be taken in every class. If you do not sign the attendance sheet while in class, you shall be marked absent. Signing the attendance sheet for another student is prohibited. The instructor is required to submit to the Registrar a record of student attendance, and action shall be taken if the record conveys a trend of absenteeism.

Only the following are acceptable excuses for absences: death in the immediate family (e.g., mother, father, spouse, child, or sibling), hospitalization or serious illness; jury duty; court ordered summons; religious holiday; university/school coordinated athletic or scholastic activities; an unanticipated event that would cause attendance to result in substantial hardship to one's self or immediate family. Absences must be explained with the submission of appropriate documentation to the satisfaction of the instructor, who will decide whether missed work may be made up. Absences that do not satisfy the above criteria are considered unexcused. To protect your privacy, doctor's excuses should exclude the nature of the condition and focus instead on how the condition impacts your attendance and academic performance.

Missing class reduces your grade through the following grade reduction policy: You are allowed two excused or unexcused absences. Each additional absence, unless excused, results in a 5% reduction in your final course grade. More than six absences result in an F in the course. Missing class may also reduce your grade by eliminating opportunities for class participation. For all absences, the student is responsible for all covered materials and assignments.

Incomplete:

The instructor may assign an Incomplete (I) grade only if at least 75% of the required coursework has been completed at passing quality and holding you to previously established time limits would result in unjust hardship to you. All unfinished work must be completed by the date set by the instructor. Left unchanged, an Incomplete automatically becomes an F after one year. <http://registrar.iupui.edu/incomp.html>

Deliverables:

You are responsible for completing each deliverable (e.g., assignment, quizzes) by its deadline and submitting it by the specified method. Deadlines are outlined in the syllabus or in supplementary documents accessible through Canvas. Should you miss a class, you are still responsible for completing the deliverable and for finding out what was covered in class, including any new or modified deliverable. In fairness to the instructor and students who completed their work on time, a grade on a deliverable that is submitted late shall be given the grade of a 0. No late submissions are accepted unless you have an excused absence which is outlined in the Attendance section or on a case-by-case basis.

NOTE: The outcomes and artifacts developed for any one class in the SoIC at IUPUI cannot be the same or overly similar between semesters or in the same semester for one student or group of students or one faculty or group of faculty. The project must be differentiated, the expectations for the project outlined, and the faculty involved, notified, and in agreement prior to the semester beginning.

CODE OF CONDUCT

All students should aspire to the highest standards of academic integrity. Using another student's work on an assignment, cheating on a test, not quoting or citing references correctly, or any other form of dishonesty or plagiarism shall result in a grade of zero on the item and possibly an F in the course. Incidences of academic misconduct shall be referred to the Department Chair and repeated violations shall result in dismissal from the program.

All students are responsible for reading, understanding, and applying the *Code of Student Rights, Responsibilities and Conduct* and in particular the section on academic misconduct. Refer to *The Code > Responsibilities > Academic Misconduct* at <http://www.indiana.edu/~code/>. All students must also successfully complete the Indiana University Department of Education "How to Recognize Plagiarism" Tutorial and Test. <https://www.indiana.edu/~istd> You must document the difference between your writing and that of others. Use quotation marks in addition to a citation, page number, and reference whenever writing someone else's words (e.g., following the *Publication Manual of the American Psychological Association*). To detect plagiarism instructors apply a range of methods, including Turnitin.com. <http://www.ulib.iupui.edu/libinfo/turnitin>

Academic Misconduct:

1. **Cheating:** ^[L]_{SEP} Cheating is considered to be an attempt to use or provide unauthorized assistance, materials, information, or study aids in any form and in any academic exercise or environment.
 - a. A student must not use external assistance on any "in-class" or "take-home" examination, unless the instructor specifically has authorized external assistance. This prohibition includes, but is not limited to, the use of tutors, books, notes, calculators, computers, and wireless communication devices.
 - b. A student must not use another person as a substitute in the taking of an examination or quiz, nor allow other persons to conduct research or to prepare

- work, without advanced authorization from the instructor to whom the work is being submitted.
- c. A student must not use materials from a commercial term paper company, files of papers prepared by other persons, or submit documents found on the Internet.
 - d. A student must not collaborate with other persons on a particular project and submit a copy of a written report that is represented explicitly or implicitly as the student's individual work.
 - e. A student must not use any unauthorized assistance in a laboratory, at a computer terminal, or on fieldwork.
 - f. A student must not steal examinations or other course materials, including but not limited to, physical copies and photographic or electronic images.
 - g. A student must not submit substantial portions of the same academic work for credit or honors more than once without permission of the instructor or program to whom the work is being submitted.
 - h. A student must not, without authorization, alter a grade or score in any way, nor alter answers on a returned exam or assignment for credit.
2. **Fabrication:** A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citation to the sources of information.
 3. **Plagiarism:** Plagiarism is defined as presenting someone else's work, including the work of other students, as one's own. Any ideas or materials taken from another source for either written or oral use must be fully acknowledged, unless the information is common knowledge. What is considered "common knowledge" may differ from course to course.
 - a. A student must not adopt or reproduce ideas, opinions, theories, formulas, graphics, or pictures of another person without acknowledgment.
 - b. A student must give credit to the originality of others and acknowledge indebtedness whenever:
 1. directly quoting another person's actual words, whether oral or written;
 2. using another person's ideas, opinions, or theories;
 3. paraphrasing the words, ideas, opinions, or theories of others, whether oral or written;
 4. borrowing facts, statistics, or illustrative material; or
 5. offering materials assembled or collected by others in the form of projects or collections without acknowledgment
 4. **Interference:** A student must not steal, change, destroy, or impede another student's work, nor should the student unjustly attempt, through a bribe, a promise of favors or threats, to affect any student's grade or the evaluation of academic performance. Impeding another student's work includes, but is not limited to, the theft, defacement, or mutilation of resources so as to deprive others of the information they contain.
 5. **Violation of Course Rules:** A student must not violate course rules established by a department, the course syllabus, verbal or written instructions, or the course materials that are rationally related to the content of the course or to the enhancement of the learning process in the course.
 6. **Facilitating Academic Dishonesty:** A student must not intentionally or knowingly help or attempt to help another student to commit an act of academic misconduct, nor

allow another student to use his or her work or resources to commit an act of misconduct.

OTHER POLICIES

1. **Administrative withdrawal:** Students must participate in all class discussions and conscientiously complete all required course activities and/or assignments. If a student is unable to attend, participate in, or complete an assignment on time, the student must inform the instructor. If a student misses more than half of the required activities within the first 25% of the course without contacting the instructor, the student may be administratively withdrawn from this course. Administrative withdrawal may have academic, financial, and financial aid implications. Administrative withdrawal occurs after the full refund period, and a student who has been administratively withdrawn is ineligible for a tuition refund.
2. **Civility:** To maintain an effective and inclusive learning environment, it is important to be an attentive and respectful participant in lectures, discussions, group work, and other classroom exercises. Thus, unnecessary disruptions should be avoided, such as ringing cell phones, engagement in private conversations, and other unrelated activities. Cell phones, media players, or any noisy devices should be turned off during a class. Texting, web surfing, and posting to social media are generally not permitted. Laptop use may be permitted if it is used for taking notes or conducting class activities. Students should check with the instructor about permissible devices in class. IUPUI nurtures and promotes “a campus climate that seeks, values, and cultivates diversity in all of its forms and that provides conditions necessary for all campus community members to feel welcomed, supported, included, and valued” (IUPUI Strategic Initiative 9). IUPUI prohibits “discrimination against anyone for reasons of race, color, religion, national origin, sex, sexual orientation, marital status, age, disability, or veteran status” (Office of Equal Opportunity). Profanity or derogatory comments about the instructor, fellow students, invited speakers or other classroom visitors, or any members of the campus community shall not be tolerated. A violation of this rule shall result in a warning and, if the offense continues, possible disciplinary action.
3. **Communication:** For classroom-based courses, the instructor or teaching assistant should respond to emails by the end of the next class or, for online courses, within two Indiana University working days, which excludes weekends and holidays. The instructor should provide weekly office hours or accept appointments for face-to-face, telephone, or teleconferenced meetings, and announce periods of extended absence in advance.
4. **Counseling and Psychological Services (CAPS):** Students seeking counseling or other psychological services should contact the CAPS office at 274-2548 or capsindy@iupui.edu. For more information visit <http://life.iupui.edu/caps/>.
5. **Course evaluations:** Course evaluations provide vital information for improving the quality of courses and programs. Students are urged to complete one course and instructor evaluation for each section in which they are enrolled at the School of Informatics and Computing with the following exceptions: (a) The student has withdrawn from the course; (b) fewer than five students are enrolled in the section (in which case maintaining anonymity is difficult); and (c) the section is a laboratory that must be taken with a course having a different section number. Course evaluations are completed at <https://soic.iupui.edu/app/course-eval/>. Course evaluations are typically

open from the eleventh week. Course evaluations are anonymous, which means that no one can view the name of the student completing the evaluation. In addition, no one can view the evaluation itself until after the instructor has submitted the final grades. In small sections, demographic information should be left blank, if it could be used to identify the student.

6. **Disabilities policy:** All qualified students enrolled in this course are entitled to reasonable accommodations for a disability. Notify the instructor during the first week of class of accommodations needed. Students requiring accommodations register with Adaptive Educational Services (AES) and complete the appropriate AES-issued before receiving accommodations. The AES office is located at UC 100, Taylor Hall (Email: aes@iupui.edu, Tel. 317 274-3241). For more information visit <http://aes.iupui.edu>.
7. **Email:** Indiana University uses your IU email account as an official means of communication, and students should check it daily. Although you may have your IU email forwarded to an outside email account, please email faculty and staff from your IU email account.
8. **Emergency preparedness:** Know what to do in an emergency so that you can protect yourself and others. For more information, visit the emergency management website at <http://protect.iu.edu/emergency>.
9. **IUPUI course policies:** A number of campus policies governing IUPUI courses may be found at the following link: http://registrar.iupui.edu/course_policies.html
10. **No class attendance without enrollment.** Only those who are officially enrolled in this course may attend class unless enrolled as an auditor or making up an Incomplete by prior arrangement with the instructor. This policy does not apply to those assisting a student with a documented disability, serving in an instructional role, or administrative personnel. <http://registrar.iupui.edu/official-enrollment-class-attendance.html> Children may *not* attend class with their parents, guardians, or childcare providers.
11. **Religious holidays:** Students seeking accommodation for religious observances must submit a request form to the course instructor by the end of the second week of the semester. For information visit <http://registrar.iupui.edu/religious.html>.
12. **Right to revise:** The instructor reserves the right to make changes to this syllabus as necessary and, in such an event, will notify students of the changes immediately.
13. **Sexual misconduct:** IU does not tolerate sexual harassment or violence. For more information and resources, visit <http://stopsexualviolence.iu.edu/>.
14. **Student advocate:** The Student Advocate assists students with personal, financial, and academic issues. The Student Advocate is in the Campus Center, Suite 350, and may also be contacted at 317 274-4431 or studvoc@iupui.edu. For more information visit <http://studentaffairs.iupui.edu/advocate>.

MISSION STATEMENT

The Mission of IUPUI is to provide for its constituents excellence in

- Teaching and Learning;
- Research, Scholarship, and Creative Activity; and

- Civic Engagement.

With each of these core activities characterized by

- Collaboration within and across disciplines and with the community;
- A commitment to ensuring diversity; and
- Pursuit of best practices.

IUPUI's mission is derived from and aligned with the principal components—Communities of Learning, Responsibilities of Excellence, Accountability and Best Practices—of Indiana University's Strategic Directions Charter.

STATEMENT OF VALUES

IUPUI values the commitment of students to learning; of faculty to the highest standards of teaching, scholarship, and service; and of staff to the highest standards of service. IUPUI recognizes students as partners in learning. IUPUI values the opportunities afforded by its location in Indiana's capital city and is committed to serving the needs of its community. Thus, IUPUI students, faculty, and staff are involved in the community, both to provide educational programs and patient care and to apply learning to community needs through service. As a leader in fostering collaborative relationships, IUPUI values collegiality, cooperation, creativity, innovation, and entrepreneurship as well as honesty, integrity, and support for open inquiry and dissemination of findings. IUPUI is committed to the personal and professional development of its students, faculty, and staff and to continuous improvement of its programs and services.